Listing of Claims:

This listing of claims will replace all prior versions and listings of claims in this Application.

1-3, 5-8, 10-20. (Cancelled)

4. (Previously amended) [The method of claim 3,] A method of surgery comprising:

forming concave surfaces in endplates of confronting vertebral bodies;

inserting between the formed concave surfaces an intervertebral disc endoprosthesis wherein the intervertebral disc endoprosthesis comprises: L-shaped supports wherein each of the L-shaped support comprises an exterior convex surface adapted to mate with one of the formed concave surfaces; and a resilient body interposed between the L-shaped supports; and

implanting at least one anchor in at least one of the confronting vertebral bodies, wherein the implanting is located in an anterior surface of the at least one of the confronting vertebral bodies.

9. (Previously amended) [The method of claim 7, further comprising] A method of surgery comprising:

implanting at least one anchor in an anterior surface of at least one of confronting vertebral bodies;

removing damaged disc material;

forming concave surfaces in the endplates of the confronting vertebral bodies; and

inserting between the formed concave surfaces an intervertebral disc endoprosthesis comprising: confronting supports, each support having an exterior convex surface adapted to mate with one of the formed concave surfaces; and a resilient body interposed between the supports.

21. (Previously Presented) A method of surgery comprising:

forming partially hemispherical surfaces in endplates of confronting vertebral bodies; and

inserting between the formed partially hemispherical surfaces an intervertebral disc prosthesis comprising confronting supports, each support having a partially hemispherical exterior surface adapted to mate with one of the formed partially hemispherical surfaces, wherein the supports are capable of movement relative to each other after the prosthesis has been inserted between the formed partially hemispherical surfaces.

22. (Previously Presented) The method of surgery according to claim 21, wherein the partially hemispherical surfaces are formed using a milling jig.

23. (Previously Presented) The method of surgery according to claim 21, further comprising:

prior to forming the partially hemispherical surfaces in the vertebral body endplates, implanting at least one anchor into a hole having a predetermined position in an anterior surface of at least one of the confronting vertebral bodies; and

affixing a bone surface milling mechanism to the at least one anchor.

24. (Previously Presented) A method for inserting an intervertebral disc prosthesis having a first and second surface, the method comprising:

forming a first indention in a first endplate of a first vertebral body, the first indention having a middle portion and a circumferential rim such that the middle portion is deeper into the first vertebral body than any part of the circumferential rim;

fixedly mating the first surface to the first indention of the first endplate of the first vertebral body, the first surface having a shape that conforms to the first indention; and

fixedly mating the second surface to a second vertebral body.

25. (Previously Presented) The method of claim 24 wherein the first indention is formed by attaching a milling jig to either the first or second vertebral body and milling the first indention.

26. (Previously Presented) The method of claim 24 wherein the first indention is concave about multiple planes and the first surface of the intervertebral disc prosthesis has a convex shape.

27. (Previously Presented) The method of claim 24 wherein the first and second surface are capable of relative movement after being mated to the first and second vertebral bodies, respectively.

28. (Previously Presented) The method of claim 24 further comprising:

forming a second indention in a second endplate of the second vertebral body, the second indention having a middle portion and a circumferential rim such that the middle portion is deeper into the second vertebral body than any part of the circumferential rim.

29. (Previously Presented) A method of surgery comprising:

forming a first surface in an endplate of a first vertebral body, the first surface being arcuate in multiple planes;

inserting a motion-preserving disc prosthesis into an intervertebral space adjacent to the formed first arcuate surface; and

positioning a first portion of the inserted prosthesis against the formed first surface of the first vertebral body, wherein the first portion has an exterior configuration adapted to mate with the formed first surface.

30. (Previously Presented) The method of surgery of claim 29 further comprising:

forming a second arcuate surface in an endplate of a second vertebral body opposing the first vertebral body; and

positioning a second portion of the inserted prosthesis against the formed second arcuate surface of the second vertebral body, wherein the second portion has an exterior configuration adapted to mate with the formed second arcuate surface.

31. (Previously Presented) The method of surgery of claim 30 further comprising:

attaching a milling jig to at least one of the first and second vertebral bodies for milling the arcuate surfaces in the endplates of the first and second vertebral bodies.

32. (Cancelled) A method of surgery comprising:

attaching a milling jig to a vertebral body;

milling an endplate of the vertebral body to a relatively shallow thickness as compared to an overall thickness of the vertebral body; and

positioning a motion-preserving implant into a disc space adjacent the milled endplate, the implant have a surface that conforms to the milled endplate.

33. (Currently Amended) A method of surgery comprising:

attaching a milling jig to a vertebral body;

milling an endplate of the vertebral body to a relatively shallow thickness as compared to an overall thickness of the vertebral body, with a convex shape of the milled endplate having a depth less than its width; and

positioning a motion-preserving implant into a disc space adjacent the milled endplate, the implant have a surface that conforms to the milled endplate.

34. (Previously Presented) The method of claim 33 wherein the shape is convex about

multiple planes.

35. (Previously Presented) A method of surgery comprising:

(a) forming concave surfaces in the endplates of confronting vertebral bodies, and

(b) inserting between the formed concave surfaces an intervertebral disc endoprosthesis, comprising:

(1) confronting concaval-convex supports, each support having an exterior convex surface adapted to mate with one of the formed concave surfaces, and

(2) a resilient body element interposed between the concaval-convex supports.

36. (Previously Presented) A method of endoprosthetic discectomy surgery comprising:

receiving information about the size, shape and nature of a patient's involved natural spinal vertebral bodies and natural spinal vertebral discs from [known] imaging devices,

removing at least the involved, damaged natural spinal disc material from the patient's spine,

forming concave surfaces in adjacent spinal vertebral bodies, the concave surfaces being concave about multiple planes, and

implanting an intervertebral disc endoprosthesis comprising a resilient disc body and concaval-convex elements at least partly surrounding the resilient disc body in the patient's spine.